

mySCAT₂



USER'S MANUAL

РУКОВОДСТВО ПОЛЬЗОВАТЕЛЯ

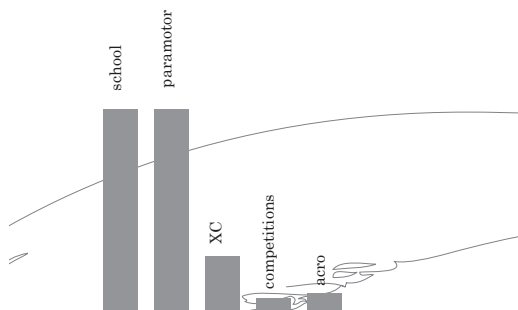


Muscat-2

Thank you for choosing SC Muscat-2! We hope that the Muscat-2 will give you a lot of wonderful flying hours.

MuSCat2 is a Basic Intermediate glider. It is suited for all pilots, including pilots under all levels of training. This paraglider has good aerodynamic characteristics along with high safety, which enables it to be used for recreational flying and also flying with paramotor.

MuSCat2-27 is CEN B certified.



Warning! Paragliding is a high risk activity. We strongly recommend to learn paragliding only in certified schools and to choose only the equipment which is correspondent to Your flying skills.

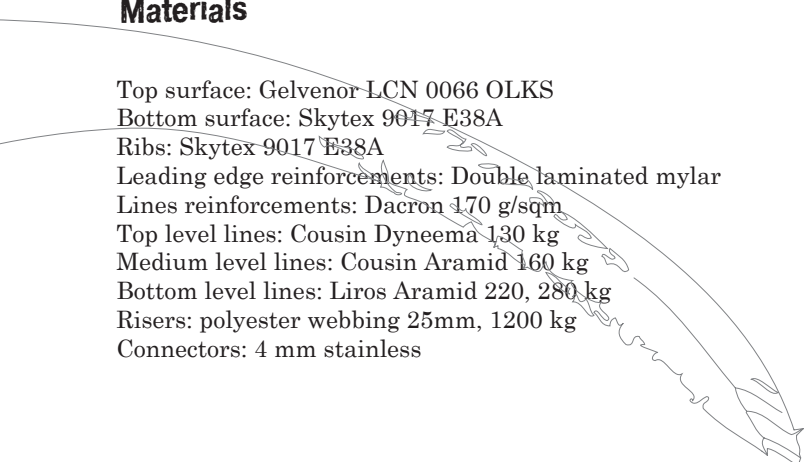
Technical data

size	18	23	25	27	29	31	33
scale	0,816	0,923	0,962	1	1,036	1,071	1,105
flat wing area, sq.m.	18	23	25	27	29	31	33
wing span, m.	9,57	10,82	11,33	11,73	12,15	12,56	12,96
aspect ratio	5,1						
projected wing area, sq.m.	15,2	19,43	21,11	22,81	24,48	26,16	27,85
projected span, m.	7,3	8,26	8,6	8,95	9,27	9,58	9,89
projected a/r	3,511						
root chord, m.	2, 34	2,653	2,765	2,875	2,978	3,079	3,17
tip chord, m.	0,46	0,533	0,556	0,578	0,598	0,619	0,639
cells	41						
Vmin,km/h	23						
Vmax,km/h	48						
Vymin,m/s	1,2						
total weight in flight	45-60	60-75	70-90	80-100	90-115	100-125	120-145

The total weight in flight is equal to the weight of the pilot and all the equipment including the wing.
Usually - pilot weight + 15...17 kg.

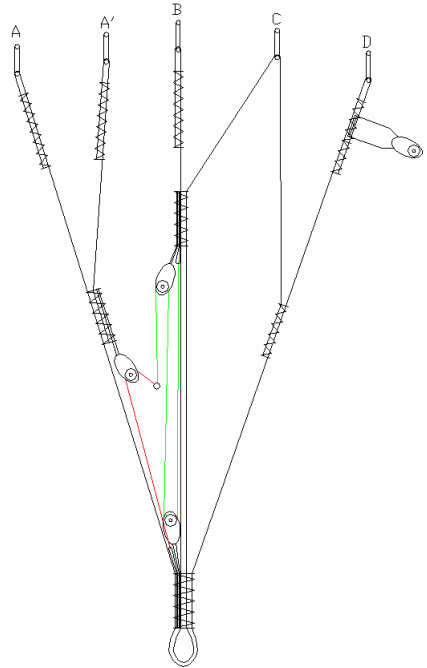
Materials

Top surface: Gelvenor LCN 0066 OLKS
 Bottom surface: Skytex 9017 E38A
 Ribs: Skytex 9017 E38A
 Leading edge reinforcements: Double laminated mylar
 Lines reinforcements: Dacron 170 g/sqm
 Top level lines: Cousin Dyneema 130 kg
 Medium level lines: Cousin Aramid 160 kg
 Bottom level lines: Liros Aramid 220, 280 kg
 Risers: polyester webbing 25mm, 1200 kg
 Connectors: 4 mm stainless



Risers

MuSCat2 has the risers scheme A2A'1B4C3D2. The risers are equipped with speed system, that increases the speed range of the glider.

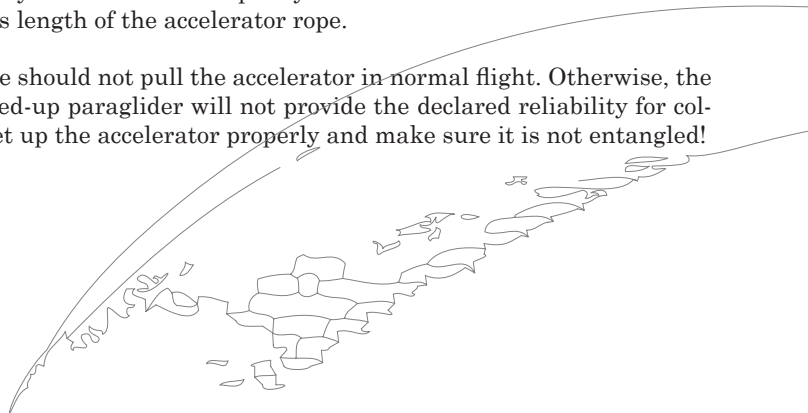


Accelerator System Adjustment

Muscat-2 construction enables you to use it with an accelerator. To set up the accelerator on the ground:

1. Attach the risers to the harness.
2. Attach the accelerator.
3. Sit in your harness.
4. Ask a friend to pull your risers into their in-flight position.
5. While sitting in the harness, stretch your legs and push the loop of the accelerator as much as possible. (The rope will be stretched when pulled).
6. With your legs stretched, choose the length of the lead in such a way that accelerator harness is fully stretched and the pulleys on the risers touch.
7. Fix with a tie this length of the accelerator rope.

The accelerator rope should not pull the accelerator in normal flight. Otherwise, the permanently-speeded-up paraglider will not provide the declared reliability for collapses. You must set up the accelerator properly and make sure it is not entangled!



Pre-flight check

- Lines are clear and leading edge is open
- Karabiners and maillons are tight
- All harness buckles are closed
- Helmet on
- Check reserve parachute
- Accelerator bar is attached
- Wind direction is perpendicular to the glider
- Airspace is clear

Warning!

You are not allowed to change the paraglider construction except adjusting the brake lines, because it might lead to unpredictability in flying and make the paraglider dangerous in certain flying situations.

You must never use Muscat-2 for:

- jumps;
- tandem-flying;
- any other purpose except flying.

Launching

Your Muscat-2 can take-off with both forward and reverse techniques.

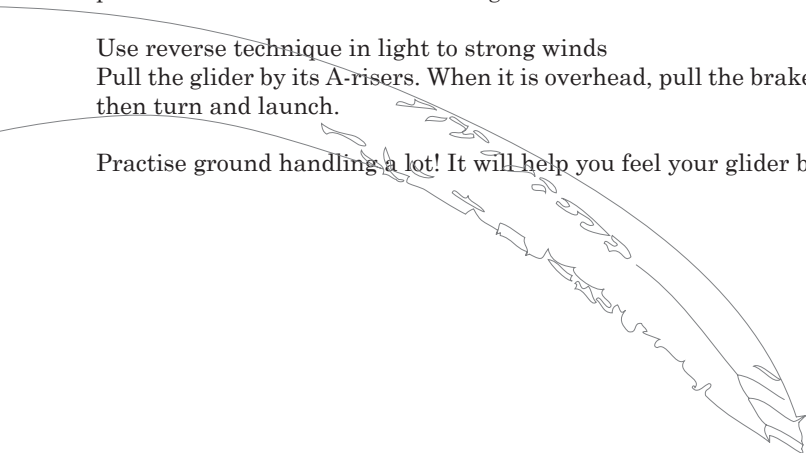
Use forward technique when the wind is light, or there is no wind.

Move forward and your glider will start to inflate. You must maintain a constant pressure on the risers until the wing is overhead. Brake it a little and launch.

Use reverse technique in light to strong winds

Pull the glider by its A-risers. When it is overhead, pull the brakes to stop the glider, then turn and launch.

Practise ground handling a lot! It will help you feel your glider better.



In Flight Characteristics

Muscat-2 is very simple glider. It has long brake travel, light brake pressure and turns very well. When accelerated Muscat-2 remains solid and well-pressured. It also has very high resistance to deflations in turbulence.

Speed control

You can change speed by simultaneously pulling or releasing the brakes. Flying at trim speed (hands up) your glider will achieve its best glide ratio. When brakes are pulled approximately 30 cm - you get its minimum sink rate. In order to increase your speed you can use the accelerator.

Using the speed system

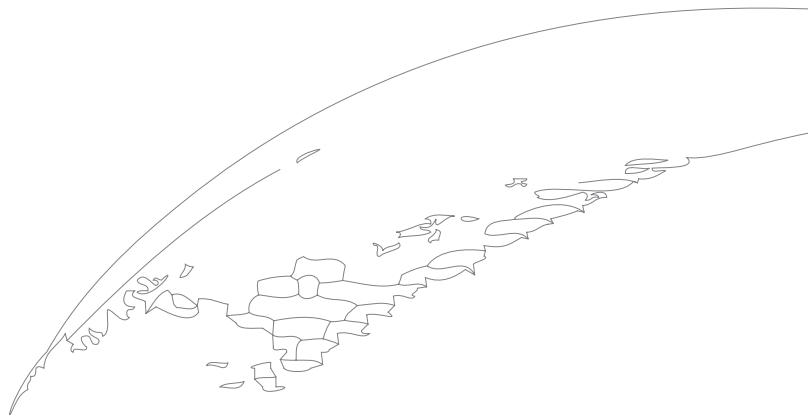
Muscat-2 reaches its maximum speed when you pull the accelerator to its maximum and release the brakes. Use this mode for long-distance flying and in strong winds. When using accelerator you will have a maximum speed of 48 km/h. When you use the accelerator, your glider is more likely to collapse.

Turn control

In order to make Muscat-2 turn with a minimum sink and radius while pulling the internal brake you should pull very slightly the external one too. Use weightshift to decrease the spiral radius. If the thermal flow is narrow and strong, increase the tilt and the rotation speed by releasing the external brake.

When you need to turn fast, you should swing Muscat-2 in the opposite direction and then pull as hard as needed the internal brake.

Muscat-2 has a long brake travel (about 90 cm). When full stall is about to happen, the load at the brakes increases, and ensures that you know about it.



Flying in turbulence

You can help your glider to avoid different collapses in turbulence - you must fly actively for it. When the glider pitches forward - use the brakes to slow it, if it goes back - release brakes. These movements can be symmetric or asymmetric.

Let us remind you once again that you should be very careful choosing the weather to fly.

Descent Techniques

Big Ears

While holding the brakes you should symmetrically pull the outer A-lines. For directional control of the glider use the weight shift. When you do big ears, the horizontal speed increases slightly. In order to return to normal flight, you should release the A-lines and pull the brakes a few times.

Spiraling is not permitted with big ears, because of the increased load on the remaining lines so that they can be physically deformed.

B-stall

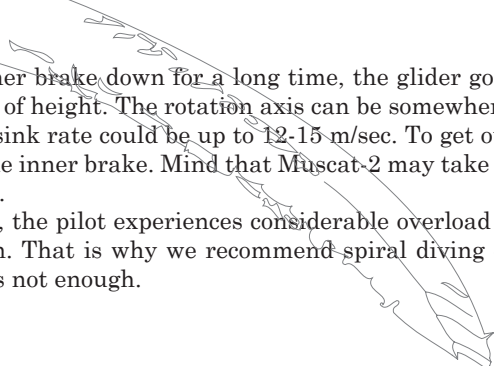
When you need to lose height quickly because of the sudden worsening of the weather, risk of entering a cloud, etc, we recommend you B-stall.

Holding the brakes you take B-risers near the connectors. Forcefully but not suddenly, pull down the risers 25-30 cm and hold them as long as necessary. The wing gets a fold along the entire B-row and sinks at a rate of 8-10 m/sec. In order to return to normal flight simply release the B-risers and your Muscat-2 will get out of the B-stall with a small front dive. You can use the brakes once the horizontal speed is gained. Muscat-2 does not normally tend to go into deep stall once the B-risers are released. If this does happen (possibly for bad adjustment or under-loading), you should either pull the A-risers or swing the wing with the brakes.

Spiral dive

When you hold either brake down for a long time, the glider goes into a fast sharp turn and loses a lot of height. The rotation axis can be somewhere between the pilot and the wing. The sink rate could be up to 12-15 m/sec. To get out of the spiral dive you must release the inner brake. Mind that Muscat-2 may take one more turn after releasing the brake.

While spiral diving, the pilot experiences considerable overload up to 3 - 4g, so you can lose orientation. That is why we recommend spiral diving only when the sink rate of the B-stall is not enough.



Landing

In small winds, when you have 1-2 meters to the ground, you should pull the brakes gently to your arms' full length, so that you put your Muscat-2 in stall at a height of about 0.5 m and the horizontal speed is zero.

In strong winds you must land facing the wind. If necessary you can fold the ears. As you approach the ground, you must take B-risers while holding the brakes. As soon as you hit the ground, you must turn towards the glider and pull B-risers running towards the wing. If the wing is flopping about a meter above the ground, release the B-risers and pull the brakes hard to your arms length. We do not recommend you to use the brakes in the strong wind, as the wing could catch the wind and pull the pilot.

Do not let the glider overtake you and hit the ground with its front edge, which leads to increased pressure in the wing and may damage it.

Deflations

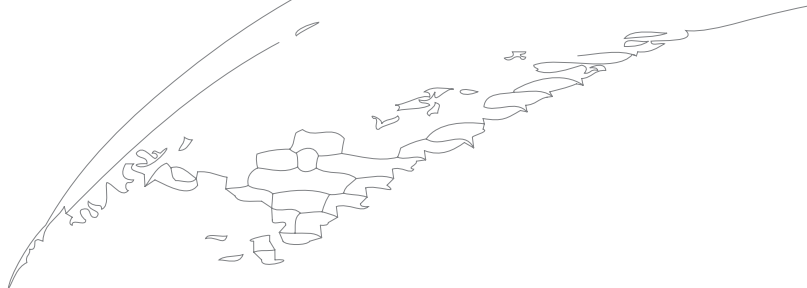
Asymmetric collapse

MuSCat2 is extremely resistant to collapses. However the glider may collapse in extremely turbulent conditions or if the incorrect piloting techniques are applied by pilot.

Asymmetric collapses can be controlled by weight-shifting away from the collapse and applying a small amount of brake to control the flight direction. At the same time you should use the brake to re-inflate the canopy.

If your Muscat-2 collapses in accelerated flight, you must immediately release the accelerator to slow the glider down.

Remember that the deflated glider has higher stall speed and smaller brake travel. That is why you should be careful not to pull the brake too hard to avoid stall.



Deflations

Frontal collapse

Muscat-2 comes out of symmetrical front collapse by itself. You can pull the brakes about a 20 cm to speed the re-inflation.

If your Muscat-2 collapses in accelerated flight, you must immediately release the accelerator to slow the glider down.

Remember that the deflated glider has higher stall speed and smaller brake travel. That is why you should be careful not to pull the brake too hard to avoid stall.

Full stall

Full stall happens when you pull both brakes too hard. To return to the normal flight you must release both brakes. After this usually comes a front dive with a possible front deflation.

Just because Muscat-2 warns the pilot about stalling by increasing the brake load, it is highly unlikely for you to enter it unexpectedly.

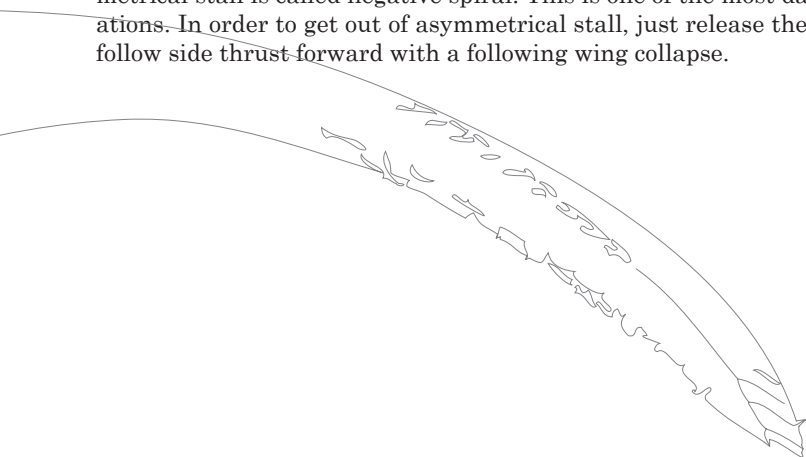
Deep stall (parachuting)

MuSCat2 is very unlikely to enter the deep stall. However it may happen if flying in heavy rain, using a damaged glider or applying incorrect flying techniques.

To get out of this mode you must pull A-risers or swing the wing by pulling and releasing the brakes (preferably the first one).

Asymmetrical stall

It can take place when you pull one of the brakes too hard, or while spiraling at a small speed in turbulence you increase the angle of attack. Rotation in the asymmetrical stall is called negative spiral. This is one of the most dangerous flying situations. In order to get out of asymmetrical stall, just release the brakes. There may follow side thrust forward with a following wing collapse.



Deflations

Self-rotation

Increasing rotation usually takes place when the pilot has not reacted properly to the asymmetric collapse of the accelerated paraglider. Try to slow down the rotation by counter-shifting your weight in the harness and pulling the outer brake. If the self-rotation is increasing, drop the rescue parachute quickly in the direction of the rotation. This mode can also take place when you make extreme turns of the overloaded paraglider.

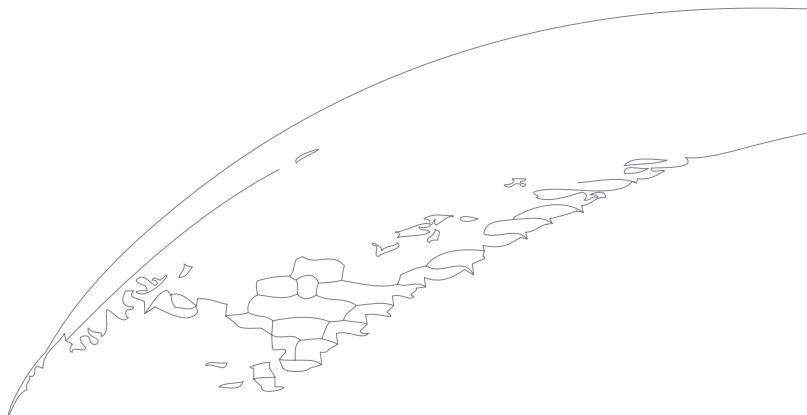
Cravat

If the collapsed part of the canopy is entangled in the lines, you must try to release it by pulling the ear-line. If you cannot do it and the rotation is increasing, you must use the parachute.

In flight damage

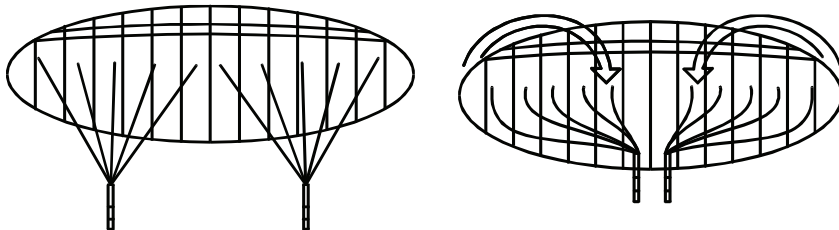
Estimate the damage. If a brake has untied - no problem as Muscat-2 can be steered well by weight shift and pulling the back risers. Even if the damage allows for a sustainable controlled flight, you should land as soon as possible. If normal flight is impossible, you must use the parachute.

We do not recommend you to use the above-mentioned risky techniques. You can use them at a sufficient height over the water when you are wearing a life jacket and there is an experienced instructor in a boat.

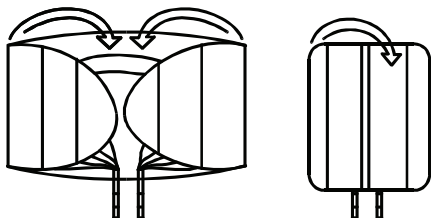


Packing Your glider

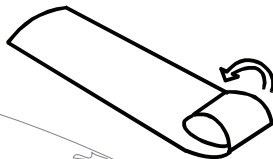
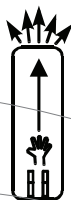
Try to pack your Muscat-2 as loosely as the rucksack allows, because every fold weakens the cloth. Special care should be taken about the rib reinforcements. Follow this scheme:



Spread the glider on the ground the bottom surface up. Put all the lines onto the canopy. The risers can be placed both at the leading or at the trailing edge.



Fold the canopy from the tips to center. Let the air come out from the canopy through the air intakes.



Press the canopy gently from the trailing to the leading edge to bring out the residual air. Then roll it from the trailing to the leading edge.



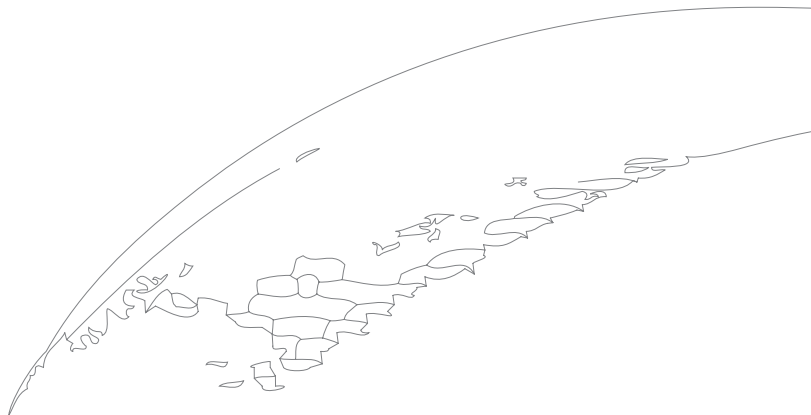
Avoid packing the glider if it is wet or contains the abrasive particles (sand, ice...). If the glider was packed wet and/or contains abrasive stuff -- unpack it, let it dry and remove the trash from the canopy as soon as possible.

General Glider Care

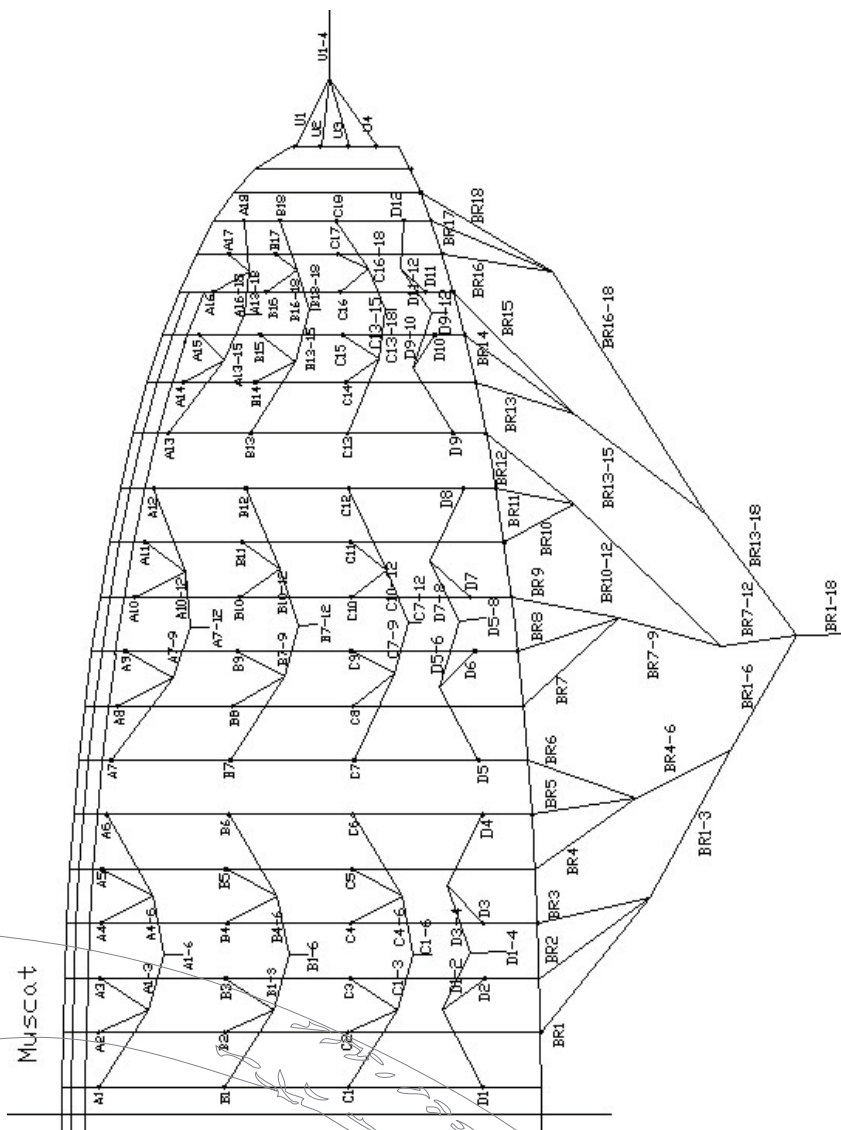
Take care while using Your glider. The inappropriate and/or inaccurate use may cause the damage of the canopy and lines, and the glider may become dangerous in flight.

Follow these rules and your Muscat-2 will be in good condition:

- Do not expose your Muscat-2 to the sun any longer than necessary
- Keep Muscat-2 away from water and other liquids
- Do not let the front edge hit the ground
- If wet dry Muscat-2 in shade. If soaked in salty water, rinse the glider thoroughly in non-salty water
- Keep your Muscat-2 away from fire
- Do not put anything heavy on your glider, do not pack it in a rucksack too tightly.
- Regularly inspect the canopy, lines, risers and harness. If you find any defects, contact your dealer or the manufacturer. Do not attempt to self-repair the paraglider!
- If you detect a damaged line, inform the dealer or manufacturer about the line number according to the line plan
- Keep your Muscat-2 in a rucksack in a dry well-ventilated place under neutral temperature and humidity conditions
- If you do not use Muscat-2, then once a month you should unpack it, ventilate it well, and then pack it back in the rucksack.
- Do not wash Muscat-2. Do not use detergents or solvents. Clean dirty places with wet soft cloth or sponge.



You can use this scheme, if you want to order the new line instead of damaged.



Warrantee and Wing Repairs

The producer guarantees the correctness of the declared characteristics and the paraglider's normal performance for one year after the purchase date, but no more than 200 flying hours. The producer conducts special, and after-warranty repairs and maintenance at the owners' request for an extra price.

We recommend to inspect your paraglider (including checking suspension line strength, line geometry, riser geometry and permeability of the canopy material) one time at two years, or every 100 hours of flying time (whichever comes first); Those inspection must be made by manufacturer or dealer.

If damaged, your Muscat-2 must be repaired by manufacturer, or dealer.
Small holes in Gelvenor fabrics you can repair with silicon glue and a piece of Gelvenor cloth. Small holes in Skytex may be repaired with sticky rip-stop tape.

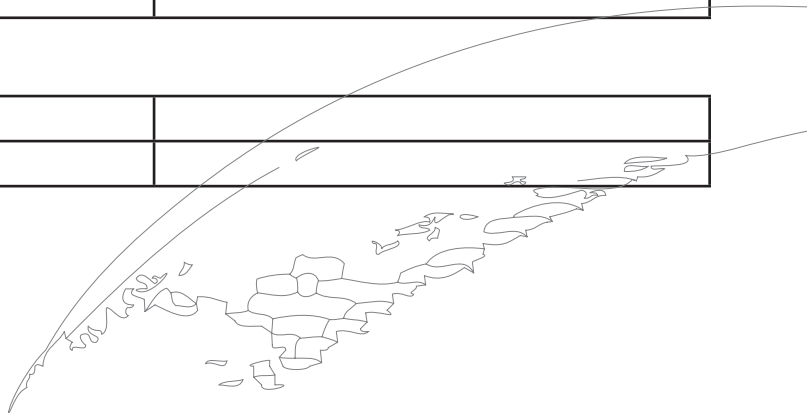
Attention please!

The producer bears no responsibility for non-compliance with the stated characteristics if:

- the user manual is not followed;
- the paraglider structure is changed in any way;
- the paraglider is self-repaired.

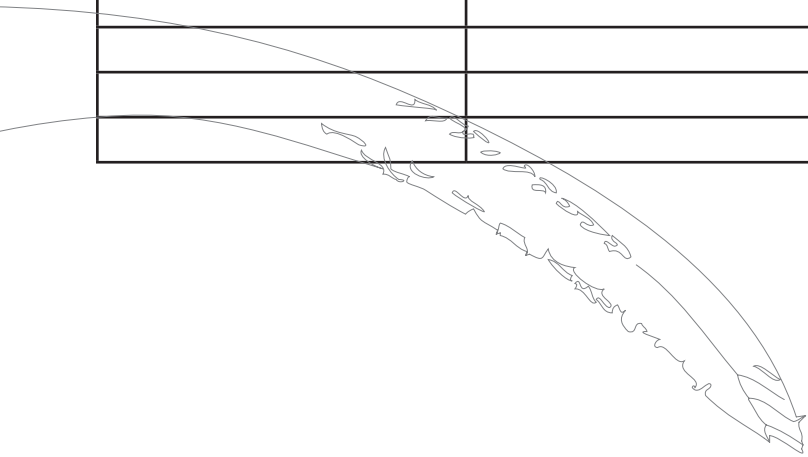
Serial number	
Production date	
Test pilot	

Dealer	
Date	



Muscat-2

Wing check and repairs information



Flight test report



Manufacturer Sky Country
Address 61085, Akademika Proskuri street, 5-v.29
 Kharkov
 Ukraine

Certification number
Date of flight test
Place of test

PG 072.2007
 26/04/2007
 Villeneuve

Representative None
Type of glider Sky Muscat-2 27
Trimmer not available

Classification B

Test Pilot Claude Thurnheer
Harness Sky Axel II M
Total weight in flight 80 kg

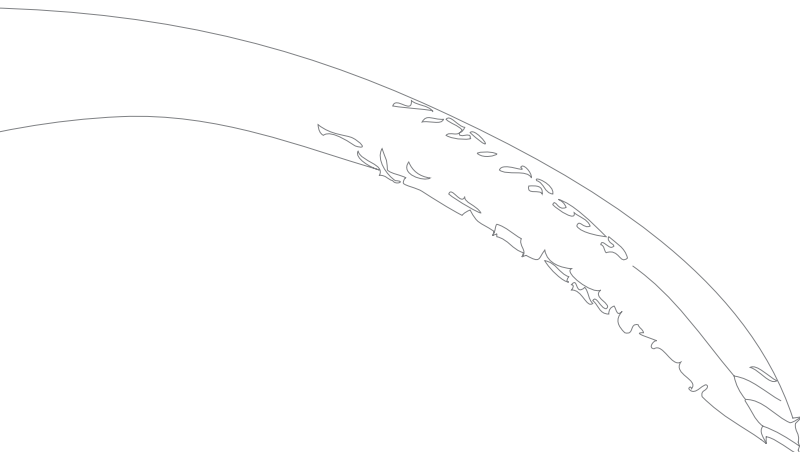
Chris Geist
SOL Slider
 100 kg

	Min weight		Max weight	
1. Inflation/Take-off				
Rising behaviour	Smooth, easy and constant rising	A	Smooth, easy and constant rising	A
Special take off technique required	No		No	A
2. Landing				
Special landing technique required	No	A	No	A
3. Speed in straight flight				
Trim speed more than 30 km/h	Yes	A	Yes	A
Speed range using the controls larger than 10 km/h	Yes	A	Yes	A
Minimum speed	Less than 25 km/h	A	Less than 25 km/h	A
4. Control movement				
Max. weight in flight up to 80 kg	not available	0	not available	0
Symmetric control pressure/travel				
Max. weight in flight 80 kg to 100 kg	Increasing, Greater than 55 cm	A	not available	0
Symmetric control pressure/travel				
Max. weight in flight greater than 100 kg	not available	0	Increasing, Greater than 60 cm	A
Symmetric control pressure/travel				
5. Pitch stability exiting accelerated flight				
Dive forward angle on exit	Dive forward less than 30°	A	Dive forward less than 30°	A
Collapse occurs	No	A	No	A
6. Pitch stability operating controls during accelerated flight				
Collapse occurs	No	A	No	A
7. Roll stability and damping				
Oscillations	Reducing	A	Reducing	A
8. Stability in gentle spirals				
Tendency to return to straight flight	Spontaneous exit	A	Spontaneous exit	A
9. Behaviour in a steeply banked turn				
Sink rate after two turns	More than 14 m/s	B	More than 14 m/s	B
10. Symmetric front collapse				
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Dive forward angle on exit	Dive forward 0° to 30°, Keeping course	A	Dive forward 0° to 30°, Keeping course	A
Cascade occurs	No	A	No	A
With accelerator				
Entry	Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Dive forward angle on exit	Dive forward 0° to 30°, Keeping course	A	Dive forward 0° to 30°, Keeping course	A
Cascade occurs	No	A	Dive forward 0° to 30°, Entering a turn less than 90°	A
11. Exiting deep stall (parachutal stall)				
Deep stall achieved	Yes	A	Yes	A
Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
Change of course	Changing course less than 45°	A	Changing course less than 45°	A
Cascade occurs	No	A	No	A
12. High angle of attack recovery				
Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Cascade occurs	No	A	No	A
13. Recovery from a developed full stall				
Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
Collapse	No collapse	A	No collapse	A
Cascade occurs (other than collapse)	No	A	No	A
Rocking back	Less than 45°	A	Less than 45°	A
Line tension	Most line tight	A	Most line tight	A
14. Asymmetric collapse				
With 50% collapse-Maximum dive forward or roll angle				
Change of course until re-inflation	Less than 90°, Dive or roll angle 0° to 15°	A	Less than 90°, Dive or roll angle 0° to 15°	A
Re-inflation behaviour	Spontaneous re-inflation	A	Spontaneous re-inflation	A
Total change of course	Less than 360°	A	Less than 360°	A
Collapse on the opposite side occurs	No	A	No	A
Cascade occurs	No	A	No	A
Twist occurs	No	A	No	A
With 75% collapse-Maximum dive forward or roll angle				
Change of course until re-inflation	90° to 180°, Dive or roll angle 15° to 45°	B	Less than 90°, Dive or roll angle 0° to 15°	A
Re-inflation behaviour	Spontaneous re-inflation	A	Spontaneous re-inflation	A
Total change of course	Less than 360°	A	Less than 360°	A
Collapse on the opposite side occurs	No	A	No	A
Twist occurs	No	A	No	A
Cascade occurs	No	A	No	A
With 50% collapse and accelerator-Maximum dive forward or roll angle				
Change of course until re-inflation	Less than 90°, Dive or roll angle 15° to 45°	A	90° to 180°, Dive or roll angle 15° to 45°	B
Re-inflation behaviour	Spontaneous re-inflation	A	Spontaneous re-inflation	A
Total change of course	Less than 360°	A	Less than 360°	A
Collapse on the opposite side occurs	No	A	No	A

	Twist occurs	No	A	No	A
	Cascade occurs	No	A	No	A
	<i>With 75% collapse and accelerator-Maximum dive forward or roll angle</i>				
	Change of course until re-inflation	90° to 180°, Dive or roll angle 15° to 45°	B	90° to 180°, Dive or roll angle 15° to 45°	B
	Re-inflation behaviour	Spontaneous re-inflation	A	Spontaneous re-inflation	A
	Total change of course	Less than 360°	A	Less than 360°	A
	Collapse on the opposite side occurs	No	A	No	A
	Twist occurs	No	A	No	A
	Cascade occurs	No	A	No	A
15. Directional control with a maintained asymmetric collapse					
	Spin occurs	Yes	A	Yes	A
	180° turn away from the collapsed side possible in 10 s	Yes	A	Yes	A
	Amount of control range between turn and stall or spin	More than 50 % of the symmetric control travel	A	More than 50 % of the symmetric control travel	A
16. Trim speed spin tendency					
	Spin occurs	No	A	No	A
17. Low speed spin tendency					
	Spin occurs	No	A	No	A
18. Recovery from a developed spin					
	Spin rotation angle after release	Stops spinning in less than 90°	A	Stops spinning in less than 90°	A
	Cascade occurs	No	A	No	A
19. B-line stall					
	Change of course before release	Change of course less than 45°	A	Change of course less than 45°	A
	Behaviour before release	Remains stable with straight span	A	Remains stable with straight span	A
	Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
	Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
	Cascade occurs	No	A	No	A
20. Big ears					
	Entry procedure	Dedicated controls	A	Dedicated controls	A
	Behaviour during big ears	Stable flight	A	Stable flight	A
	Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
	Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
21. Big ears in accelerated flight					
	Entry procedure	Dedicated controls	A	Dedicated controls	A
	Behaviour during big ears	Stable flight	A	Stable flight	A
	Recovery	Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
	Dive forward angle on exit	Dive forward 0° to 30°	A	Dive forward 0° to 30°	A
	Behaviour immediately after releasing the accelerator while	Stable flight	A	Stable flight	A
22. Behaviour exiting a steep spiral					
	Tendency to return to straight flight	Spontaneous exit	A	Spontaneous exit	A
	Turn angle to recover normal flight	Less than 720°, spontaneous recovery	A	Less than 720°, spontaneous recovery	A
	Sink rate when evaluating spiral stability [m/s]	16 m/s		16 m/s	
23. Alternative means of directional control					
	180° turn achievable in 20 s	Yes	A	Yes	A
	Stall or spin occurs	No	A	No	A
24. Any other flight procedure and/or configuration described in the user's manual					
	Procedure works as described	not available	0	not available	0
	Procedure suitable for novice pilots	not available	0	not available	0
	Cascade occurs	not available	0	not available	0
Comments of test pilot					
	Comments	no		no	



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